SUPPLEMENTAL OPERATING INSTRUCTIONS

To be used in conjunction with
MONROE SELF-PACED USER'S MANUAL
for Model 1766 (Form 1583-S)

MODEL 1775

ELECTRONIC PROGRAMMABLE DISPLAY CALCULATOR FOR STATISTICS

(SAME AS 1785 INSTRUCTIONS
BUT WITHOUT THE PRINTER)

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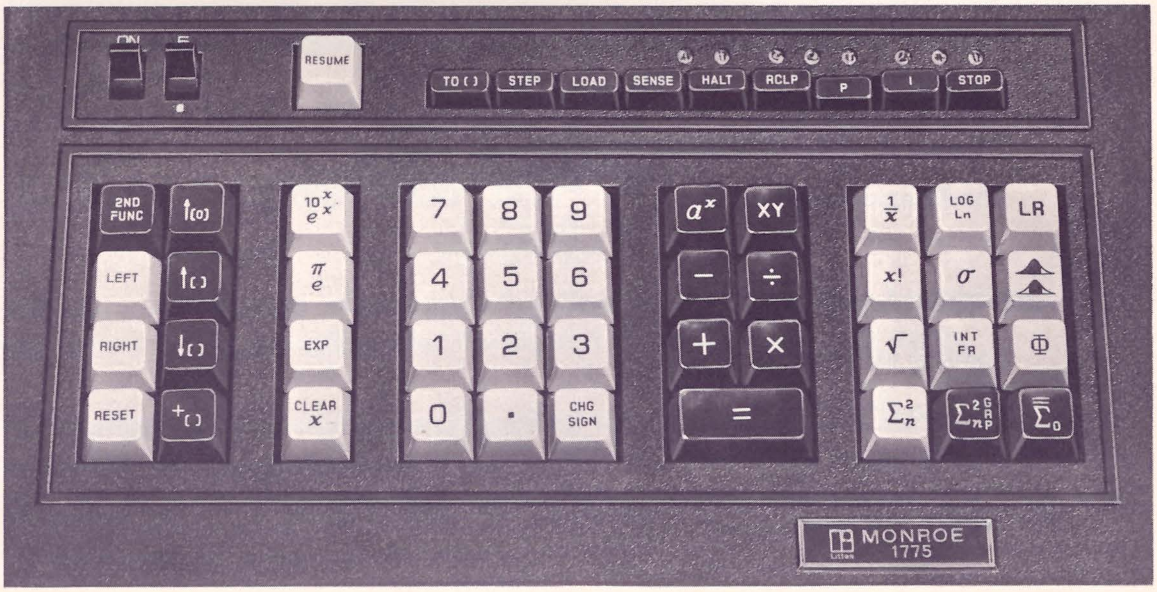

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INTRODUCTION

Monroe Model 1775 Programmable Display Calculator is designed for statistical applications. It combines the problem-solving capability of a small computer with the operating ease of a desk calculator. Its powerful keyboard should suffice for most calculations. For more complex computations, solutions can be obtained through card programming. Model 1775 has special hard-wired keyboard functions for:

- Sums of products, quotients and differences
- Permutations and combinations
- Normal probability and confidence interval testing
- Standard deviation and mean of grouped and ungrouped data
- Correlation coefficient, slope and y-intercept

Standard hard-wired keyboard functions include raising any number to any power, finding the square root, reciprocal, factorial, log and antilog. The ten registers can be split once, for a total of twenty storage registers. There are 128 or 256 program steps, depending upon the memory configuration selected. Each hard-wired function takes one program step. The Model 1775 is capable of branching, looping, jumping and subroutine programming. You will be able to solve complex computations in seconds and free yourself from tedious and repetitive problem-solving. For example, the correlation coefficient between two sets of ungrouped data is:

$$r = \frac{N\Sigma XY - (\Sigma X)(\Sigma Y)}{\sqrt{[N\Sigma X^2 - (\Sigma X)^2]\,[N\Sigma Y^2 - (\Sigma Y)^2]}}$$

The value of r can be computed with a single key depression. Results may be displayed either exponentially or numerically depending upon the position of the display format switch.

The Model 1775 programmable calculator is designed for the statistical needs of scientists, engineers, economists, statisticians, and professionals in many allied disciplines. The Model 1775 is the ideal product for applications in descriptive and test statistics, combinatorial theory and time series analysis.

Linear Regression

LR This key computes three quantities:

1 Correlation coefficient r

2 Slope m (stored in register 9)

3 y-intercept b (stored in register 8)

Before these quantities can be computed, data may be conveniently entered using the XY key.

Example Compute the correlation coefficient, slope and y-intercept for the two sets of numbers $S_1 = (1.2, 1.3, 1.4, 1.5)$ and $S_2 = (-1.4, 1.7, 2.9, 3.8)$

Depress:

RESET

1 . 2 XY CHG SIGN 1 . 4 =

1 . 3 XY 1 . 7 =

1 . 4 XY 2 . 9 =

1 . 5 XY 3 . 8 =

LR (correlation coefficient) Read 0.955718608 (r)

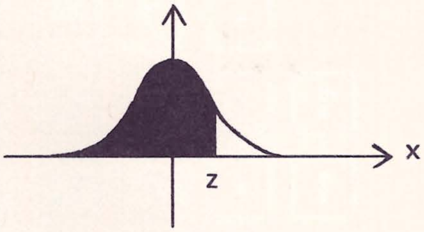
2ND FUNC (slope) Read 16.8 (m)

↑( ) 8 (y-intercept) Read −20.93 (b)

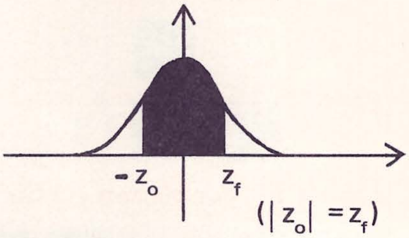
Normal Probability

This key computes two functions

1 $$\frac{1}{\sqrt{2\pi}}\int_{-\infty}^{z} e^{-z^2/2}\,dz$$



2 $$\frac{1}{\sqrt{2\pi}}\int_{-z_o}^{z_f} e^{-z^2/2}\,dz$$



The standardized variable Z is defined as:

$$Z = \frac{X_i - \overline{X}}{\sigma}$$

Where X_i is a sample value, $\overline{X}$ is the mean and σ is the standard deviation. Function 1 is obtained by depressing the normal probability key. Function 2 is obtained by depressing the 2ND FUNC key. Both functions are displayed in decimal form. To convert it to % per 100, multiply decimal value by 100.

Example Consider the set of numbers $S_1 = (-1.2, .7, 1.4, 1.7, 2.9)$

Find the % range of $X_i = 1.5$ in the set S_1.

Depress: RESET

CHG SIGN 1 . 2 Σ^2_N
. 7 Σ^2_N
1 . 4 Σ^2_N
1 . 7 Σ^2_N
2 . 9 Σ^2_N

Enter data

σ ↓( ) 0 (store σ in reg. 0) Read 1.511621645

2ND FUNC ↓( ) 1 (store $\overline{X}$ in reg. 1) Read 1.1

(compute Z) 1 . 5 − ↑( ) 1 ÷ ↑(0) = Read .264616480

Note: Since the mean ($\overline{X}$) of the set S_1 is 1.1 and X_i = 1.5, clearly 1.5 > 1.1, i.e. $X_i > \overline{X}$.

Depress ▲ Read 0.604348000

Answer: .604348 or ≅ 60.43%

Since the normal probability function 1 for Z = .264616480 is .604348, the number 1.5 is in the upper 60% of the numbers (−1.2, .7, 1.4, 1.7, 2.9).

Example: Compute the percentage confidence for:

a range of 1 standard deviation from mean
b two standard deviations from mean
c three standard deviations from mean

Solution a

Depress 1 ▲ 2ND FUNC

Answer: .68269 = 68.269%

Solution b

Depress [2] [▲] [2ND FUNC]

Answer: .9545 = 95.45%

Solution c

Depress [3] [▲] [2ND FUNC]

Answer: .9973 = 99.73%

Antilog$_{10}$ /Antilog$_e$

[10^x e^x] This key computes the antilog base 10 and antilog base e of a number if $-98 \leqslant X \leqslant 99$. The antilog base 10 is displayed while the antilog base e is stored in register 9.

Example: Compute the antilog$_{10}$ and antilog$_e$ of 2

Depress [2] [10^x e^x]

Answer: 100

Depress [2ND FUNC]

Answer: 7.389056098

Permutations/Combinations

[Φ] [1] The special function key [Φ] and the digit key [1] can be used to compute permutations and combinations. A permutation is defined as:

$$P(n, r) = \frac{n!}{(n-r)!}$$

where $n \geqslant r$, and n, r are non-negative integers.

A combination is defined as:

$$\binom{n}{r} = \frac{n!}{r!(n-r)!}$$

A combination is always stored in register 9. Combinations are also called binomial coefficients. To compute permutations/combinations:

1 store n in register 9

2 enter r

3 depress Φ and 1 keys

The permutation is now displayed while the combination is stored in register 9.

Example: If n = 10 and r = 8, compute the permutation and the combination.

Depress 1 0 ↓( ) 9 8 Φ 1

Permutation P(10, 8) Read 1814400

Depress 2ND FUNC

Combination $\binom{10}{8}$ Read 45

Identifiers

Φ 6

When the Φ and 6 keys are depressed after a number, it causes the number to be displayed as an identifier.

Register Splitting

LEFT

RIGHT

A number may be stored in the left or right half of a storage register. The storage is in exponential form. A maximum of five digits in the characteristic may be stored but the exponents may range from −98 to +99.

Example: Store the first five digits of π in the left part of register 0 and 1.2×10^{15} in the right part of register 0.

Depress π e LEFT ↓( ) 0 1 • 2
EXP 1 5 RIGHT ↓( ) 0

Note: When recalling values from split registers, the sequence must be LEFT ↑( ) 0 RIGHT ↑( ) 0 , if the values are stored in register 0.

Registers affected on Model 1775

	0	1	2	3	4	5	6	7	8	9
$\overset{\equiv}{\Sigma}_o$	✓									
Σ_n^2		✓	✓	✓						
Σ_n^2 G R P		✓	✓	✓						
XY		✓	✓	✓	✓	✓	✓			
LOG Ln									✓	✓
10^x e^x								✓	✓	✓
LR									✓	✓
a^x								✓	✓	✓
INT FR										✓
π e										✓
Φ * 1										✓
σ										✓
2ND FUNC										✓
▲ ▲										✓

*When computing permutations/combinations, n must be stored in register 9.

KEYBOARD PROGRAMMING

There are 128 program steps in the regular Model 1775 calculator and 256 program steps with the double memory calculator. Programs may be loaded at branch points numbered 0 through 15. The regular model has only branch points 0 through 7. The loading instructions are shown below.

Loading Instructions in Keyboard Programming

	STEP 1 LOCATE STARTING POINT		STEP 2 LOAD PROGRAM				STEP 3 EXECUTE PROGRAM			
0	TO ( )	0	LOAD	→	ENTER COMMANDS	→	RELEASE LOAD	TO ( )	0	RESUME
1	TO ( )	1	LOAD	→	ENTER COMMANDS	→	RELEASE LOAD	TO ( )	1	RESUME
2	TO ( )	2	LOAD	→	ENTER COMMANDS	→	RELEASE LOAD	TO ( )	2	RESUME
3	TO ( )	3	LOAD	→	ENTER COMMANDS	→	RELEASE LOAD	TO ( )	3	RESUME
4	TO ( )	4	LOAD	→	ENTER COMMANDS	→	RELEASE LOAD	TO ( )	4	RESUME
5	TO ( )	5	LOAD	→	ENTER COMMANDS	→	RELEASE LOAD	TO ( )	5	RESUME
6	TO ( )	6	LOAD	→	ENTER COMMANDS	→	RELEASE LOAD	TO ( )	6	RESUME
7	TO ( )	7	LOAD	→	ENTER COMMANDS	→	RELEASE LOAD	TO ( )	7	RESUME
8	TO ( )	8	LOAD	→	ENTER COMMANDS	→	RELEASE LOAD	TO ( )	8	RESUME
9	TO ( )	9	LOAD	→	ENTER COMMANDS	→	RELEASE LOAD	TO ( )	9	RESUME
10	TO ( )	.	LOAD	→	ENTER COMMANDS	→	RELEASE LOAD	TO ( )	.	RESUME
11	TO ( )	CHG SIGN	LOAD	→	ENTER COMMANDS	→	RELEASE LOAD	TO ( )	CHG SIGN	RESUME
12	TO ( )	EXP	LOAD	→	ENTER COMMANDS	→	RELEASE LOAD	TO ( )	EXP	RESUME
13	TO ( )	$^{+}( )$	LOAD	→	ENTER COMMANDS	→	RELEASE LOAD	TO ( )	$^{+}( )$	RESUME
14	TO ( )	2ND FUNC	LOAD	→	ENTER COMMANDS	→	RELEASE LOAD	TO ( )	2ND FUNC	RESUME
15	TO ( )	π e	LOAD	→	ENTER COMMANDS	→	RELEASE LOAD	TO ( )	π e	RESUME

The following is a program utilizing roundoff to the nearest whole number. The program includes an imaginative application of the INT FR key, as well as a ~ 3 second pause subroutine to display the answer. (Pause technique will be explained on page 16.)

Example: A research scientist wishes to compute the height of 5 arbitrarily chosen adult males, and obtain his answer rounded off to the nearest inch. The first 5 adult males have the following heights: 67", 69", 72", 68" and 75". After loading program, enter data as follows:

Depress RESET
Enter 6 7
Depress Σ_N^2
Enter 6 9
Depress Σ_N^2
Enter 7 2
Depress Σ_N^2
Enter 6 8
Depress Σ_N^2
Enter 7 5
Depress Σ_N^2
Depress RESUME

Answer: 70" (average height rounded to nearest inch)

PROGRAM A

PROGRAM Compute Average Rounded Off to Nearest Integer **NO.**________ **PAGE** 1 **OF** 1

DATE________ **MODEL** 1775

Branch Point	ADDRESS (P COUNT)			COMMAND	CODE			REMARKS												
								E	A	M	0	1	2	3	4	5	6	7	8	9
0	0	0	0	HALT	4	0	1	depress RESUME after entering values												
			1	σ	0	5	3													
			2	2ND FUNC	0	3	6													
			3	+	0	6	0													
			4	•	0	1	2													
			5	5	0	0	5	add .5 to mean value												
			6	=	0	2	0													
	0	0	7	INT/FR	0	5	1	compute integer												
	0	1	0	Φ	0	3	4													
			1	0	0	0	0													
			2	Φ	0	3	4													
			3	0	0	0	0	display answer ~ 3 seconds												
			4	Φ	0	3	4													
			5	0	0	0	0													
			6	RESET	0	2	7	clear registers 0-6, E A and M												
	0	1	7	TO(0)	7	4	0	restart program												
			0																	
			1																	
			2																	
			3																	
			4																	
			5																	
			6																	
			7																	
			0																	
			1																	
			2																	
			3																	
			4																	
			5																	
			6																	
			7																	

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Pause Technique

The special function key Φ and the 0 digit key may be used to generate a pause of about 1 second. This can be utilized to display successive answers with a short pause between them. Since each Φ, 0 key depression represents one second, pauses of longer than one second can be also generated. For example:

1 sec ~ Φ, 0

2 sec ~ Φ, 0, Φ, 0

3 sec ~ Φ, 0, Φ, 0, Φ, 0

etc.

The following Program B utilizes the pause subroutine 3 times to display the mean ($\overline{X}$), variance (σ^2) and standard deviation (σ) for grouped or ungrouped data. Load the program at branch point 2. If data is ungrouped, the following input is required: See page 18.

PROGRAM B

PROGRAM Display mean ($\overline{X}$), variance (σ^2) and standard deviation (σ) for grouped or ungrouped data with pause.

NO. ______ **PAGE** 1 **OF** 1

DATE ______ **MODEL** 1775

Branch Point	ADDRESS (P COUNT)			COMMAND	CODE			REMARKS
								E A M 0 1 2 3 4 5 6 7 8 9
2	0	4	0	HALT	4	0	1	depress RESUME after data is entered
			1	σ	0	5	5	
			2	↓( )	0	2	5	
			3	0	0	0	0	
			4	2ND FUNC	0	3	6	
			5	ϕ	0	3	4	} display mean for ~ 1 sec.
			6	0	0	0	0	
	0	4	7	↑(0)	0	3	2	
	0	5	0	x	0	7	0	
			1	=	0	2	0	
			2	ϕ	0	3	4	} display variance for ~ 1 sec.
			3	0	0	0	0	
			4	↑(0)	0	3	2	
			5	ϕ	0	3	4	} display standard deviation for ~ 1 sec.
			6	0	0	0	0	
	0	5	7	RESET	0	2	4	clear all registers 0-6, E, A, M
3	0	6	0	TO(2)	7	4	2	
			1	→				→release LOAD, depress TO( ), 2, RESUME
			2					
			3					
			4					
			5					
			6					
	0	6	7					
	0	7	0					
			1					
			2					
			3					
			4					
			5					
			6					
	0	7	7					

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Enter X_1 Depress Σ^2_N
. .
. .
. .
Enter X_n Depress Σ^2_N
Depress RESUME

The Model 1775 will now display the mean, variance and standard deviation with a one-second pause.

If the data is grouped, the following input is required (f denotes frequency):

Enter X_1 Depress Σ^2_n GRP

Enter f_1 Depress =

Enter remaining sample values (X_i) and frequencies (f_i) in the same sequence as X_1 and f_1.

Depress RESUME

The calculator will now display the mean, variance and standard deviation with a one-second pause.

Example: Find the $\overline{X}$, σ^2 and σ of the numbers 2, 3, 4 and 5.

Solution:
Enter 2 Depress Σ^2_N
Enter 3 Depress Σ^2_N
Enter 4 Depress Σ^2_N
Enter 5 Depress Σ^2_N
Depress RESUME

Answer: $\overline{X} = 3.5$, $\sigma^2 = 1.666666666$, $\sigma = 1.29099448$

Conditional Branching

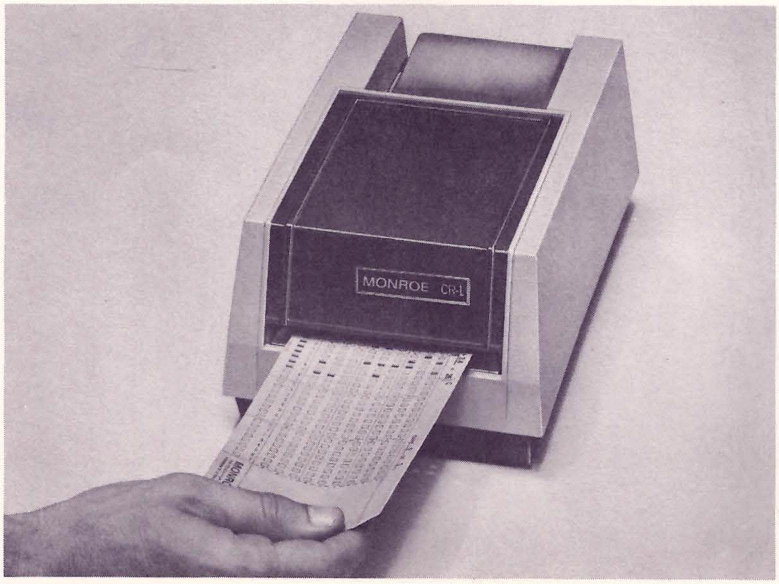
Four conditional branching commands can be affected through the keyboard. A conditional branching command is affected by depressing the Φ key and a digit key. If the condition is met, the program will branch to the branch point designated by the digit key. The results are summarized below:

Command	Program Route	Condition
Φ 2	Branches to branch point 2	SENSE key depressed
Φ 3	Branches to branch point 3	E $\leqslant$ 0
Φ 4	Branches to branch point 4	SENSE key depressed
Φ 5	Branches to branch point 5	E $\leqslant$ 0

CARD PROGRAMMING

Card programming allows greater flexibility, simplicity and programming power. Programs can be stored on punched cards. Loading a program is as simple as entering the punched cards into the CR-1 card reader. The loading instructions are shown below. Branch points 8 through 15 are only available with the double memory calculator.

	STEP 1 LOCATE STARTING POINT		STEP 2 LOAD PROGRAM				STEP 3 EXECUTE PROGRAM				
0	TO ( )	0	LOAD	→	ENTER CARDS	→	RELEASE	LOAD	TO ( )	0	RESUME
1	TO ( )	1	LOAD	→	ENTER CARDS	→	RELEASE	LOAD	TO ( )	1	RESUME
2	TO ( )	2	LOAD	→	ENTER CARDS	→	RELEASE	LOAD	TO ( )	2	RESUME
3	TO ( )	3	LOAD	→	ENTER CARDS	→	RELEASE	LOAD	TO ( )	3	RESUME
4	TO ( )	4	LOAD	→	ENTER CARDS	→	RELEASE	LOAD	TO ( )	4	RESUME
5	TO ( )	5	LOAD	→	ENTER CARDS	→	RELEASE	LOAD	TO ( )	5	RESUME
6	TO ( )	6	LOAD	→	ENTER CARDS	→	RELEASE	LOAD	TO ( )	6	RESUME
7	TO ( )	7	LOAD	→	ENTER CARDS	→	RELEASE	LOAD	TO ( )	7	RESUME
8	TO ( )	8	LOAD	→	ENTER CARDS	→	RELEASE	LOAD	TO ( )	8	RESUME
9	TO ( )	9	LOAD	→	ENTER CARDS	→	RELEASE	LOAD	TO ( )	9	RESUME
10	TO ( )	.	LOAD	→	ENTER CARDS	→	RELEASE	LOAD	TO ( )	.	RESUME
11	TO ( )	CHG SIGN	LOAD	→	ENTER CARDS	→	RELEASE	LOAD	TO ( )	CHG SIGN	RESUME
12	TO ( )	EXP	LOAD	→	ENTER CARDS	→	RELEASE	LOAD	TO ( )	EXP	RESUME
13	TO ( )	+( )	LOAD	→	ENTER CARDS	→	RELEASE	LOAD	TO ( )	+( )	RESUME
14	TO ( )	2ND FUNC	LOAD	→	ENTER CARDS	→	RELEASE	LOAD	TO ( )	2ND FUNC	RESUME
15	TO ( )	π e	LOAD	→	ENTER CARDS	→	RELEASE	LOAD	TO ( )	π e	RESUME



The following program (see Program C) computes the normal approximation to the binomial distribution. Consider the following problem: What is the probability of getting between 40 and 60 heads in 100 tosses of a fair coin? This would be a cumbersome computation utilizing the binomial distribution formula. However, it is straightforward with a normal approximation method. To solve Program C:

Depress RESET , load Program C at branch point 0, and

Enter 100 (N) Depress RESUME

Enter 40 (r_o) Depress RESUME

Enter 60 (r_f) Depress RESUME

Enter .5 (p) Depress RESUME

Answer: 0.96427 or 96.427%

Depress RESET before entering a new set of variables.

It is important that the variables be entered in the order of N, r_o, r_f, p. Also, $r_o < r_f$ and $0 < p < 1$. The probability p is always between 0 and 1.

A complete set of codes for the Model 1775 is given in Appendix.

PROGRAM C

PROGRAM Normal Approximation to Binomial Distribution NO._____ PAGE 1 OF 2

DATE_____ MODEL 1775

Branch Point	ADDRESS (P COUNT)			COMMAND	CODE			REMARKS
								E A M 0 1 2 3 4 5 6 7 8 9
0	0	0	0	HALT	4	0	1	enter N
			1	↓(1)	4	4	0	
			2	HALT	4	0	1	enter r_i ($r_i < r_f$)
			3	↓(2)	4	4	1	
			4	HALT	4	0	1	enter r_f ($r_f > r_i$)
			5	↓(3)	4	4	2	
			6	HALT	4	0	1	enter p ($0 < p < 1$)
	0	0	7	↓(4)	4	4	3	
	0	1	0	1	0	0	1	
			1	−	0	6	2	
			2	↑(4)	4	6	3	
			3	=	0	2	0	
			4	↓(5)	4	4	4	store q
			5	x	0	7	0	
			6	↑(4)	4	6	3	
	0	1	7	x	0	7	0	
1	0	2	0	↑(1)	4	6	0	
			1	=	0	2	0	
			2	$\sqrt{}$	0	5	6	
			3	↓(6)	4	4	5	store $\sqrt{Npq} = \sigma$
			4	↑(1)	4	6	0	
			5	x	0	7	0	
			6	↑(4)	4	6	3	
	0	2	7	=	0	2	0	
	0	3	0	↓(7)	4	4	6	store $\mu = Np$
			1	↑(2)	4	6	1	
			2	−	0	6	2	
			3	•	0	1	2	
			4	5	0	0	5	
			5	−	0	6	2	
			6	↑(7)	4	6	6	
	0	3	7	÷	0	7	2	

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PROGRAM C (continued)

PROGRAM Normal Approximation to Binomial Distribution **NO.**________ **PAGE** 2 **OF** 2

DATE________ **MODEL** 1775

Branch Point	ADDRESS (P COUNT)			COMMAND	CODE			REMARKS												
								E	A	M	0	1	2	3	4	5	6	7	8	9
2	0	4	0	↑(6)	4	6	5													
			1	=	0	2	0													
			2	x	0	7	0													
			3	=	0	2	0													
			4	√	0	5	6													
			5	N. DIST.	0	5	7													
			6	2ND FUNC	0	3	6													
	0	4	7	÷	0	7	2													
	0	5	0	2	0	0	2													
			1	=	0	2	0													
			2	+( )	0	3	5													
			3	0	0	0	0													
			4	↑(3)	4	6	2													
			5	+	0	6	0													
			6	•	0	1	2													
	0	5	7	5	0	0	5													
3	0	6	0	–	0	6	2													
			1	↑(7)	4	6	6													
			2	÷	0	7	2													
			3	↑(6)	4	6	5													
			4	x	0	7	0													
			5	=	0	2	0													
			6	√	0	5	6													
	0	6	7	N. DIST.	0	5	7													
	0	7	0	2ND FUNC	0	3	6													
			1	÷	0	7	2													
			2	2	0	0	2													
			3	=	0	2	0													
			4	+( )	0	3	5													
			5	0	0	0	0													
			6	↑(0)	4	7	7	display normal approximation												
	0	7	7	TO(0)	7	4	0													

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Model 1775

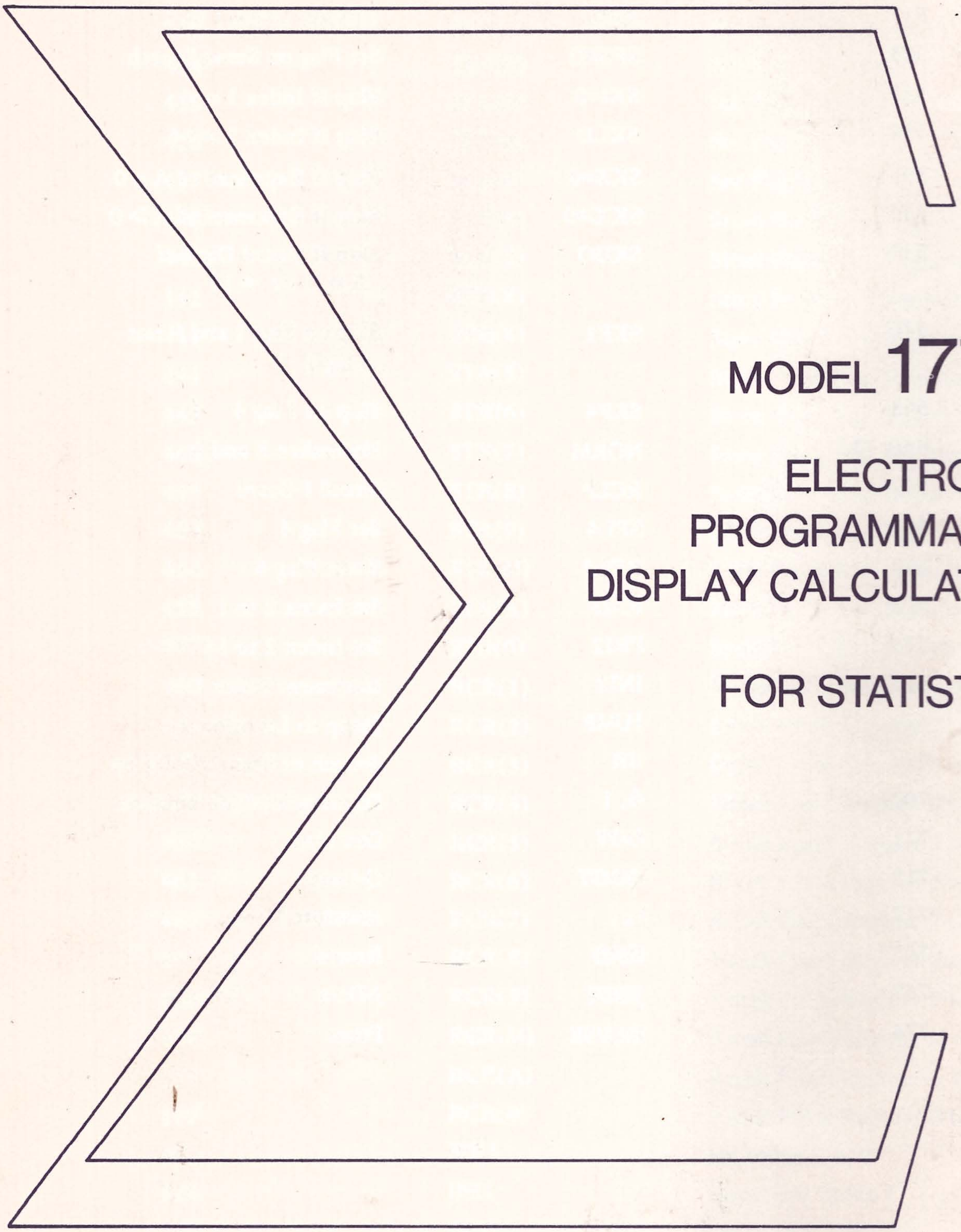
APPENDIX
INSTRUCTION LIST, NUMERICAL

Code	Instruction	Function
000 to 011	0 - 9	Numeral Entry
012	•	Decimal Point
013	CHG SIGN	Change Sign
014	EXP	Exponent
015	CLRX	Clear Entry Register
016	RIGHT	Right Store and Recall
017	π/e	Enter π and e
020	=	Equals
021	LR	Linear Regression
022	$\overline{\Sigma}_0$	Equals Sum Zero
024	RESET	Reset
025	↓( )	Store Register
030	↕( )	Exchange Register
031	↑( )	Recall Register
032	↑(0)	Recall Register Zero
033	LEFT	Left Store and Recall
034, 000	PAUSE	Pause
034, 001	Φ, 1	Permutation/Combination
034, 002	Φ, 2	Branch on Sense Switch
034, 003	Φ, 3	Branch If $E \leqslant 0$
034, 004	Φ, 4	Branch on Sense Switch
034, 005	Φ, 5	Branch If $E \leqslant 0$
034, 006	ID	Identifier
035	$^{+}$( )	Add to Memory
036	2ND FUNC	Second Function
044	X!	Factorial
050	LOG/Ln	Logarithm
051	INT/FR	Integer/Fraction
052	Σ_N^2	Sum Square

Code	Instruction	Function
053	$10^x/e^x$	Antilog
054	1/x	Invert
055	σ	Standard Deviation
056	$\sqrt{\ }$	Square Root
057	NRM DIST	Normal Distribution
060	+	Plus
062	—	Minus
070	x	Multiply
072	÷	Divide
073	XY	Paired Data Entry
074	a^x	a^x
077	Σ^{2}_{N} GRP	Sum-Square-Grouped
401	HALT	Halt
402	XCEA	Exchange E and A
403	XCMA	Exchange M and A
404	CHSN	Change Sign E
405	CHSX	Change Sign E Exponent
410	ADDN	Add Numeric
411	SUBN	Subtract Numeric
412	ADDX	Add Exponents
413	SUBX	Subtract Exponents
414	INXA	Increment Exponent of A
415	INXE	Increment Exponent of E
416	DCXA	Decrement Exponent of A
417	DCXE	Decrement Exponent of E
420	SHRA	Shift Right A
421	SHLA	Shift Left A
422	SHRE	Shift Right E
423	CLRE	Clear E
424	CLRA	Clear A
425	NOP	No Operation
430	SFA>E	Set Flag If A > E
431	SFE>A	Set Flag If E > A
432	SFE≠A	Set Flag If E ≠ A

Code	Instruction	Function
433	$SFR_o>A$	Set Flag If $R_0 > A$
434	$SFA\neq0$	Set Flag If $A \neq 0$
435	$SFA\leqslant0$	Set Flag If $A \leqslant 0$
436	$SFE\leqslant0$	Set Flag If $E \leqslant 0$
437	SFE=0	Set Flag If E = 0
440	STR(1)	Store From E to Register 1
441	STR(2)	Store From E to Register 2
442	STR(3)	Store From E to Register 3
443	STR(4)	Store From E to Register 4
444	STR(5)	Store From E to Register 5
445	STR(6)	Store From E to Register 6
446	STR(7)	Store From E to Register 7
447	STR(8)	Store From E to Register 8
450	STR(9)	Store From E to Register 9
454	STR(M)	Store From E to Register M
455	STR(A)	Store From E to Register A
457	STR(0)	Store From E to Register 0
460	RCR(1)	Recall From Register 1 to E
461	RCR(2)	Recall From Register 2 to E
462	RCR(3)	Recall From Register 3 to E
463	RCR(4)	Recall From Register 4 to E
464	RCR(5)	Recall From Register 5 to E
465	RCR(6)	Recall From Register 6 to E
466	RCR(7)	Recall From Register 7 to E
467	RCR(8)	Recall From Register 8 to E
470	RCR(9)	Recall From Register 9 to E
474	RCR(M)	Recall From Register M to E
475	RCR(A)	Recall From Register A to E
477	RCR(0)	Recall From Register 0 to E
512	RSI1	Set Index 1 to 0
513	INI1	Increment Index 1
514	DCI1	Decrement Index 1
515	LDIX	Load Index 1 From M
516	XFIM	Transfer Index 1 to M

Code	Instruction	Function
517	XFIE	Transfer Index 1 to E
523	SFSNS	Set Flag on Sense Switch
533	SKI=0	Skip If Index 1 = 0
534	SKLD	Skip If Index 2 $\neq$ 14
535	SKX=0	Skip If Exponent of A = 0
536	SKX$\geqslant$0	Skip If Exponent of A $\geqslant$ 0
537	SKDO	Skip If Guard Digit of A $\neq$ 0 or $\neq$ 15
540	SKF1	Skip on Flag 1 and Reset Flag 1
543	SKF4	Skip on Flag 4
556, 735	NORM	Normalize E and A
557	RCLP	Recall P-Store
563	SFL4	Set Flag 4
570	RFL4	Reset Flag 4
575	RSI2	Set Index 2 to 1
576	PRI2	Set Index 2 to 15
577	INI2	Increment Index 2
6xy	JUMP	Jump to Location xy
7xy	BR	Branch to Branch Point xy
700	Φ, 1	Permutation/Combination
711	DOT	Dot Line
713	QDOT	Q-Dots
717	$\lvert x \rvert$	Absolute Value
765	RND	Round
767	JDOT	J-Dots
774	PAUSE	Pause



MODEL 1775

ELECTRONIC PROGRAMMABLE DISPLAY CALCULATOR

FOR STATISTICS

Litton
MONROE
The Calculator Company

1596-S Printed in U.S.A.

PROGRAM

NO.__________ PAGE_____ OF_____

DATE__________ MODEL__________

Branch Point	ADDRESS (P COUNT)			COMMAND	CODE			REMARKS												
								E	A	M	0	1	2	3	4	5	6	7	8	9
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MONROE
THE CALCULATOR COMPANY
A DIVISION OF LITTON INDUSTRIES

Programmed by ______________________________

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